National Weather Service
Jacksonville, Florida

Professional Development Plan for

Meteorologists

AWIPSAWIPS Build AWIPS Build 5 SCAN AWIPS Build 5 SCAN includingincluding Linux AWIPS and WARP for CWSi (FY2001)

September 2000
updated May 2001

Training Goals for Meteorologists

InIn order to clarify what is expected of the meteorologists on the NWSO JAX In order to clarify wh thosethose of the CWSU, a list of training typethose of the CWSU, a list of training types and goa neitherneither alneither all-incluneither all-inclusive nor static for the staff meteorologist., merge the C intointo our training program for AWIPS...to prepare for their new system, train and develop ourour new lead forecasters local forecast our new lead forecasters local forecast kour new forecastsforecasts for the Ocala and Osceola National Forests as well as the forecasts for th National Wildlife Refuge.

AsAs the functions of the ofAs the functions of the officAs the functions of the office increase a functioning,functioning, modernized NWSFO, functioning, modernized NWSFO, so also wilfunct requiredrequired training required training continue to evorequired training continue to evolve. NovemberNovember 15, 1999, thus, all of the preparation training mustNovember 15, 1999, thus ThisThis includes fulThis includes full zone This includes full zone forecasts, marine forecasts, fire we products.

InIn the future, furtherIn the future, further evolution of training requirements will parallel theIn the develdevelopmentdevelopment odevelopment of operational mesoscale meteorological knowledg meteorologistmeteorologist training will meteorologist training will never becommeteorologist trainin thatthat end, staff meteorologists can demonstrate the highest levels of professionalthat end, staff me byby extending the envelope of opeby extending the envelope of operatioby extending the envelop trainingtraining items and goals are by nature seltraining items and goals are by nature self-ttra carriedcarried out by professionals exhibiting personnel initiative in the formucarried out by professio andand documentation of the project. In the lexicon of human growth and deveand documentatio experts,experts, these items are collaborative projects conducted by self-actualized iexperts, these it ToTo attain this level of professional development is the goal of the next two yeTo attain this level of professional development for the NWSO JAX staff meteorologists.

InIn order to help define the patIn order to help define the path required In order to hel development,development, the following training plan also contains specific guideldevelopment, trainingtraining priorities, and a brtraining priorities, and a broad scope oftraining priorities, and a br overloadoverload you, but is presented to illustrate what paths and choiceoverload you, but is pres your personnel training and development.

Fy 2001 Training Emphasis by Quarter

FallFall 2000 - Shadow Forecasts, Legacy s - Shadow Forecasts, Legacy sys - Shadow Foreca CWSU crosstraining, AWIPS and LDAD customization.
WinterWinter 2000 - CWSU crosstraining, - CWSU crosstraining, A - CWSU crosstraining weatherweather and LDAD Internet integration and other Builweather and LDAD Internet integratio PDS series training, Satellite Meteorology.
SpringSpring 2001 -Continue Build 5 and Se -Continue Build 5 and Severe -Continue Build 5 and S LDAD integration training, Meso-NWP items. CWSU AWIPS Linux server, and WARP.
SummerSummer 2001 - Enhancing Public and Marine Fo - Enhancing Public and Marine Forecasti Enhanced) LDAD, SCAN, and WWA Training starts, WFO-scale Numerical Modeling.
CWSU WARP installation and training.

I. Highest Priority Training

Goal One Demonstrate the highest levels of professional training by integDemonstrate the h mesoscalemesoscale meteorology into routine public and sevmesoscale meteorology into routin using AWIPS at the WFO and CWSU.

1. Convective Forecasting Professional Development Series (PDS)
Forecasting Severe Convection http//meted/ucar.edu/prodev.htm
ThisThis is the first ofThis is the first of the nThis is the first of the new training and developme NWSNWS meteorologists, and will be REQUIRED. NWS meteorologists, and will be REQUIRED. Y bebe coordinated with the SOO and validated with pretestbe coordinated with the SOO and val shouldshould be completed prishould be completed prior to theshould be completed prior to th remiremindremind you of some of the severe weather and convective training materials available.
ThThesTheseThese are high priority (high points) items that we can work on over the next two months as we also learn to use the capabilities of the new Build 5 version of SCAN.

The first place to start (other than PDW#3) is the additional convection training opportunities available from the MetEd Web site from the two Convection-related Professional Development Series (PDSs). (see **http//meted.ucar.edu/modules.htm**). In the future (hint, hint), these will be required items for all meteorologists. Some modules are not finished but a good number are now complete.

DeterminingDetermining likely isolated sDetermining likely isolated stDetermining likely isolated sto withwith each type are cwith each type are covewith each type are covered in the CD modul "A"Anticipa"Anticipating"Anticipating Conventive Storm Structure and Evolution." The Anticipati StructureStructure CD conStructure CD contains a brief hodograph tutorial, as well as many c coveringcovering isolated ccovering isolated convective storms that may be useful to review prior season.season. Experts Dr. Morris Weisman, Ed season. Experts Dr. Morris Weisman, Ed contributed their years of experience to the development of these materials.

Similarly,Similarly, treatments of squall line and bow echo formation, evolution, and the potential forfor damaging winds are prefor damaging winds are presfor damaging winds are presente "Mesoscale"Mesoscale Convective SystemsSquall"Mesoscale Convective SystemsSquall Lines and B accessed at **http//meted.ucar.edu/convectn/mcs/index.htm.**
TheThe brand new (March 2001) MCS Matrix CD is The brand new (March 2001) MCS Matrix CD is "A"A Convective Storm Matrix" CD-ROM,"A Convective Storm Matrix" CD-ROM, and"A Convective S the relationship between a squall line's environment and its structure and evolution.
TheThe MCS Web module (which is also included on the MCS Matrix CD The MCS Web module (wh convenience)convenience) covers the conceptual models and physical processesconvenience) co MCS morphology. Case study applications, including using the MARC signature to anticipateanticipate tanticipate the onset anticipate the onset of damaging winds, are presented. Ron Weisman were the experts involved in the creation of these modules.

While we get many MCS signatures in this area, we get very few that meet the criteria forfor an MCC. However, when an MCC passing through North Georfor an MCC. Howev TennesseeTennessee Valley and headed Southeast for the coast onTennessee Valley and headed S dayday can morph itself into an MCS that presentsday can morph itself into an MCS that presents a strangestrange breestrange breed of MCS that comes screaming down the coast from such a begi teltelltell you frankly that I do not understand the structure and morphology of eithetell you frankly tha storms,storms, but I hstorms, but I have seen a couplstorms, but I have seen a couple of each. If or itit would be worthy it would be worthy of a case study. it would be worthy of a case study. But shouldshould should watch fshould watch for in storm development. As I remember these events, th totally clueless, because the were driven by low level forcing and air-sea interaction.

TheThe "Predicting SupeThe "Predicting Supercell Motion Using Hodograph Techniq (**http//metedhttp//meted.ucar.edu/convectn/ic411**))) features forecaster Matthew Bunk presentpresentingpresenting a statistically superior method for predicting supercell motion regardles thethe shape or location of the shape or location of the the shape or location of the shear profile on uponupon the method presented in the "Anticipating Convectivupon the method presented in the " hashas been adopted by the NWS/SPC, but suggests modifed values determined from a rich dataset of actual events, rather than model studies.

AlsoAlso available this season is a neAlso available this season is a new WebcastAlso available t
GaugesAreGaugesAre They Really Ground Truth?" This 40 minuGaugesAre They Really Ground
(normally(normally should be done late at night) discusses rain gauge limitations in mea(normally
heavyheavy precipitationheavy precipitation evheavy precipitation events that often accompany c
falling tropical systems.

Numerous case study datasets from previous severe weather events are also
available from the NWS/COMET case study library at
http//www.comet.ucar.edu/resources/cases/severe_wx.htm. . .

Completion of this phase of training p Completion of this phase of training prior to Febr Co
forecasters.forecasters. The goal here is toforecasters. The goal here is to level forecasters.
convective season begins. The PDS is still under development, so training effortsconvective season
be frustrating. The PDS will also be located on the MetEd homepage.

2.2. Hands-on Training on AWIPSintroducing SCAN, WWA an2. Hands-on Training on
extensionextension of the AWIPS knowledge requirement is training extension of the AWIPS knowle
yoyouyou have learned and reinforce this knowledge in the local CWA. This will include
proficiencyproficiency checks, with hands-on training on the system. proficiency checks, with hands
ManualsManuals and map study of the CWA are rManuals and map study of the CWA are recomm
thethe office. the office. This item cathe office. This item can be practiced on shift using
exercisingexercising during quiet periods. Both eexercising during quiet periods. Both exexercising
ourour CWA, analysis of appropriate models, gathering supplementary informatioour CWA, analysis
Internet,Internet, and utilizing all the functions of the WSR-8Internet, and utilizing all the functio
capabilitiescapabilities on AWIPS using the new features of Buildcapabilities on AWIPS using the
highhigh phigh priority, and heavy weighting since they require new skills and more individual
effort than some other high priority goals.
SCAN teletraining has been offered twice in early 2001.
WWA hands on training will be completed by early May 2001. The ERH website is
http//www.werh.noaa.gov/afos2awips/wwa/wwa_infopage.htm
DevelopmentDevelopment of additional training scenarios will carry significant weightDevelopment
whowho would like to develop a scenawho would like to develop a scenarwho would like to develop
LDAD data ingest.
IFPS training resources
Southern Region Website http//www.srh.noaa.gov/ftproot/msd/html/ifps.html
ThereThere is a reading notebook in the Break Room on IFPS, anThere is a reading notebook in
FSL s website
http//www-md.fsl.noaa.gov/eft/GFEview.html
http//www-md.fsl.noaa.gov/eft/IFPbrochure.html
http//www-md.fsl.noaa.gov/eft/AWIPSdoc.html
online documentation at NWSTC s website
http//www.nwstc.noaa.gov/d.IFPS/course/ifpsdoc.htm
and Web based training modules at
http//www.nwstc.noaa.gov/d.IFPS/d.ICWF/Intro.htm
http//www.nwstc.noaa.gov/d.IFPS/course/MOS/ICWFMOS.htm

and cofiguration information at
www.nwstc.noaa.gov/d.IFPS/course/Control_const/control_constant_main.htm
http//www.nws.noaa.gov/tdl/icwf/development/site_con.htm

3.3. Numerical Weather Prediction As we will As we will hopefulAs we will hopefully be ru numericalnumerical model in the office by summer numerical model in the office by summer 20 aboutabout how models work, parameterization (particularly conveabout how models work, parame ourour area) our area) anour area) and what a model can or cannot do. In completing the N LearningLearning Learning Course, yoLearning Course, you can either choose to go through each (require(required(required (required for interns and recommended or those interested in mastery of youyou may cyou may choose to gyou may choose to go through the minimum path required minimumminimum path hminimum path has beminimum path has been defined, with guidance materialmaterial experienced forecasters will find most beneficial material experienced fo understandingunderstanding of NWP. The minimum required sections andunderstanding of NWP withinwithin each of the modules. Upowithin each of the modules. Upon complwithin each of the m shortshort online eshort online exashort online exam based on the questions you will see in th participantsparticipants will be issued a certificate, and an email will be participants will be issued ensureensure that they receive credit for the traensure that they receive credit for the training. **http//meted.ucar.edu/nwp/course.**

4.4. Satellite Meteorology Remote sensing using the new GOES imager. This modulemodule providemodule provides examples and insight into the interpretation of the high imageryimagery available from the new GOES series satellitimagery available from the new GOE BuildBuild 5. With data vBuild 5. With data voidBuild 5. With data void areas directly adjace alwaysalways be dependent on remote sensing to bridge the gap between model output parameters and what is really happening in the real atmosphere.

5.5. 5. Marine Meteorology 1 and 2 These two modules are relatively new and shouldshould be completed prior to the summer acive boating season. These programs provideprovide for specific training on issues important to the marine commuprovide for specific tra not be obvious to a forecaster without coastal experience.

6.6. 6. Operations of the NWS Hydrologic Services Program will be required will be selectedselected individuals without experience in Hydrologic Operselected individuals without expe **HeavyHeavy Precipitation and Flash Flooding** provides a goodprovides a good reprovides a good andand quantitative precipitation forecasting principles for those wand quantitative precipitation forec thithisthis area. The NWS JAX Hydro Team will be providing hands on traininthis area. The NWS river products using the RiverPro software contained in AWIPS Build 5.

Goal Two Demonstrate the highest levels ofDemonstrate the highest levels of professional training necessarynecessary skilnecessary skills for the office mission including annual safety traini CommunicationsCommunications training and traiing to uCommunications training and traiing to other modernized systems.

1.1. Safety and Haz1. Safety and Hazardous1. Safety and Hazardous Material (HAZMAT thethe annual training requirements in Hazard Communthe annual training requirements in Hazard first aid and CPR, climb training and other safety requirements.

2.2. UNI2. UNIX and LINUX Training in preparation for AWIPS Build 5 and WARP As mentionedmentioned in last year s plan, UNIX is a morementioned in last year s plan, UNIX WindowsWindows XX, in that it is both a multi-task and Windows XX, in that it is both a multi-task a UNIXUNIX can perform different operations for different terminals at the same time, with speedspeed dependent on processospeed dependent on processor loading.speed dependent on system,system, and requires special knowlsystem, and requires special knowledgsystem, and req AnAn introduction to UNIX is now available on An introduction to UNIX is now available on t availableavailable on the Internet and as other items become available, will bavailable on the Int InternetInternet and Intranet bookmarks. Purchased CDROM packages on HP-Internet and Intran andand INFORMIX are installed on PDW#3, but further UNIX training will be necessary to effectivelyeffectively understand the information presented and the system iteffectively understand training goals for FY 2000 are

a.a. AWIPS and LINUX version Desktop Environment including (a. AWIPS and LINUX vers needneed to be acquiredneed to be acquired in this graphineed to be acquired in this graphical use operateoperate in the AWIPSoperate in the AWIPS operate in the AWIPS environment. A tutorial p wilwillwill help you acquire knowledge and skills in D2D. Here again, once the knowlewill help you a acquiracquired,acquired, or even wacquired, or even while you are acquiring it, it should environment.environment. Any other trainenvironment. Any other training in D2D cenvironment. notification,notification, if and when any become available. A demonstration of your skills in the DD2DD2D eventually may be required as a pre-certification check. You may also D2D eventually r learnlearn learn to customizlearn to customize your local D2D environment for your personal files, bu chanchangeschanges to thechanges to the operational accounts (i.e. awipsusr, textdemo, ldm) will ThisThis will again be a low weighted goal, but with high personal payoff inThis will again be efficiency in the next year.

b. Non-AWIPSb. Non-AWIPS quasi-operational software AWIPS is currently built onAWIPS basicbasic structures found in older programs (NTL suite, GEMPAK, LDM, NetCDF). The underlyingunderlying sounderlying software rouunderlying software routines and the UNIX structure installedinstalled in the AWinstalled in the AWIPS) is tinstalled in the AWIPS) is the same file struc foundfound in the SAC, found in the SAC, and in found in the SAC, and in particular the local dis wherewhere somewhere some of the previous software will still be used in an analysis role for products.

AlsoAlso closely alAlso closely allied witAlso closely allied with the AWIPS operating system is chosenchosen for the WSR-88D RPG Open System Rehoschosen for the WSR-88D RPG Open S SUNSUN UNIX architecture (SUN UltraSparc platform) similar to the current SUN UNIX architecture structurestructure and file sysfile system. file system. This is a high priority goal and will be more h thanthan most other items. Some initial trainingthan most other items. Some initial training will be butbut much of the effobut much of the effort but much of the effort after the initial familiarizat FFunctionalFunctional evaluations and proficiency testing will be developed. UNIX andFunctional ev languagelanguage training is highly desirable and canlanguage training is highly desirable and can be FloridaFlorida Community ColleFlorida Community College systeFlorida Community College programming courses.

Goal Three Demonstrate the highest levels of professional training by exDemonstrate the highe envelope of operational mesoscale meteorological knowledge.

1.1. Dev1. Development and Presentation of Scientific or Operational St1. Developm contrast to last year, a heavy operational training load will necessitate less researchcontrast to last ye fewerfewer stufewer studies in FY 2001. Still, studies developed personally, or in collaboration wi others,others, which enhance and extend operational mesoscale meteoroloothers, which enhance andand better forecast processes or methods is a continuing goal of our profeand better forec developmendevelopmentdevelopment program. Such studies can be for the local staff, a grou (Florida,(Florida, coastal CWA s, Southern Region) or a national professional organization of meteorologistsmeteorologists (NWS, AMSmeteorologists (NWS, AMS or NWA for example). By professionalprofessional effort is indicative of a professional effort is indicative of a hiprofessional eff isis at the summit of the professionis at the summit of the profession and cois at the sum profeprofessionals.professionals. professionals. These items will be both highly regarded and high training in recognition of the many hours spent in thought, review and documentation.

II. LowerLower Priority Goals Some Some of these goals may be accomp Some of these g opportunityopportunity presents itself, or other programs cannot be utilized oopportunity presents ThesTheseThese goals may These goals may also be accomplished on other shifts during periods and as time permits.

Goal Four Demonstrate the high levels ofDemonstrate the high levels of professioDemo operational capabilities in support of the office mission.

1.1. 1. Focal point1. Focal point duties and operational projects Though in one sense not training,training, improvements in the operations area or assigned focal point duties undtraining, impr asas specific projects,as specific projects, are cas specific projects, are certainly professional devel newnew facets tonew facets to the fnew facets to the focal point program, a new manual or duty co oror Intranet training programs will be highly credited. In fact, any preapprovor Intranet training p developeddeveloped to ensure an enhanced depth and breaddeveloped to ensure an enhanced importantimportant to the office mission. These itemsimportant to the office mission. These it substantialsubstantial mission priority) in that they are ongoing efforts to improve each focal point areaarea by area by using resources at hand to produce targeted training, and as such, warea heavilyheavily weighheavily weighted in the annual training revue process. These items sho developeddeveloped with concurrence of the SOO and MIdeveloped with concurrence of the SOO a of a fiscal year cycle.

2. Internet, Intranet and HTML training Although this is a relatively low priority goal,goal, this powergoal, this powerful wood processor is still the standard in the Southern Regi basicbasic HTMbasic HTML is tbasic HTML is the language of the Internet. If you prepare a resear oror other written communication, these are the tools to use. Word Pe the tools to use. Word Pe andand even surpasses some of the desktop publishers on the market. Graphics, tables andand other explanatory vehicles can be inserted in the text to furtherand other explanatory vehicle tryingtrying to say. It also does a basic translation into HTML. A tutorial is available on most computerscomputers that have Word Perfect installed and computers that have Word Perfect insta ononon this program. An HTML tutorial is availablon this program. An HTML tutorial is av documentadocumentatidocumentationdocumentation section. Here again, skills must be practiced

acquiredacquired foracquired for you to retain what is learned. Due to the complexity of thisacquired f
itit may provideit may provide some initiait may provide some initial frustrations, but if you persist, you
the program.

3.3. Geographic Informa3. Geographic Information Syst3. Geographic Information Syst
maymay soon bemay soon be integmay soon be integrated into AWIPS to allow even greater cap
ourour data to a relational database. Any available training in this area will be highly weighted as formal course work in consonance with the office mission.

Goal Five Demonstrate hiDemonstrate highDemonstrate high levels of professional training **activities to obtain expertise. This is admittedly a catchall.** Your individual effort
toto improto improve yoto improve your professional skills through internal or external activity is ppriority priority training goal but may be weighted from low to high weightingpriority training goal includeinclude taking a college course oninclude taking a college course on a rinclude taking a co programsprograms of the office, or any number of ways that yoprograms of the office, or consultationconsultation with the MIC and SOO) have determined are necesconsultation with the with your personal goals for professional development.

SUMMARY

ThisThis list of goals and items does not repreThis list of goals and items does not represe focfocusfocus on, but represents a path or approach to important training and subject mfocus on, HopefullyHopefully this document points out some areas that need to be studieHopefully this docu skills to be acquired.

OtherOther materials, such as periodiOther materials, such as periodicals, present recenOth forecastforecast problems and should be reviewed from time to time for topics of inforecast probl applicationsapplications tapplications to the forecast process or meteorology in general. Articles o interestterest terest wterest will be brought to your attention and should be reviewed as they b available.available. When you are on an extra or quiet shift, consideavailable. When you are on an IntranetIntranet or IIntranet or InterIntranet or Internet tutorial and budget your time according to needs. If you have questions, come and talk to me.

Pat Welsh, SOO, NWSO JAX